NPTEL : Biomathematics (Biotechnology)

Co-ordinators : Dr. Ranjith Padinhateeri

NPTEL : Proteomics: Principles and Techniques (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Proteins and Gel-Based Proteomics (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Mass spectrometry based proteomics (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Interactomics: Protein Arrays and Label-free Biosensors (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Introduction to Proteomics (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Introduction to Biostatistics (Biotechnology)

Co-ordinators : Prof. Shamik Sen

NPTEL : NOC:Introduction to Mechanobiology (Biotechnology)

Co-ordinators : Prof. Shamik Sen

NPTEL : NOC:Introductory Mathematical Methods for Biologists (Biotechnology)

Co-ordinators : Dr. Ranjith Padinhateeri

NPTEL : NOC:Bioengineering: An Interface with Biology and Medicine (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Applications of Interactomics using Genomics and Proteomics Technologies (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Introduction to Proteogenomics (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

NPTEL : NOC:Interactomics: Basics and Applications (Biotechnology)

Co-ordinators : Prof. Sanjeeva Srivastava

Lecture 32 - Basics of SPR: Experimental design

Lecture 33 - Protein immobilization for protein-protein interaction studies

Lecture 34 - Protein-protein interaction study: Binding analysis

Lecture 35 - Protein-protein interaction study: Kinetic analysis

Lecture 36 - Use of SPR in unravelling domain motif interactions of proteasomal assembly chaperones

Lecture 37 - Protein-small molecule interaction study: Immobilization and binding analysis

Lecture 38 - Protein-small molecule interaction study: Kinetic analysis

Lecture 39 - An introduction to biolayer interferometry (BLI)and its applications in protein research

Lecture 40 - Biomolecular interactions using Bio-Layer Interferometry (BLI) - I

Lecture 41 - Biomolecular interactions using Bio-Layer Interferometry (BLI) - II

Lecture 42 - Lab session- An introduction to BioLayer Interferometry (BLI) and its applications in protein research

Lecture 43 - Applications of label-free technologies - II

Lecture 44 - Biomolecular interaction analytics using MicroScale Thermophoresis

Lecture 45 - Mass Spectrometry coupled Interactomics - I

Lecture 46 - Mass Spectrometry coupled Interactomics - II

Lecture 47 - Next-Generation Sequencing Technology - Ion Torrent

Lecture 48 - NGS Technology - Bioinformatics and data analysis - I

Lecture 49 - NGS Technology - Bioinformatics and data analysis - II

Lecture 50 - Next-Generation Sequencing Technology- Illumina

Lecture 51 - Agilent complete NGS target enrichment workflow for exomes, targeted panels and beyond

Lecture 52 - The Human Pathology Atlas: A Pathology Atlas of the Human Transcriptome - I

Lecture 53 - The Human Pathology Atlas: A Pathology Atlas of the Human Transcriptome - II

Lecture 54 - Statistical Analysis - I

Lecture 55 - Statistical Analysis - II

Lecture 56 - Secondary Data Analysis

Lecture 57 - Pathway Enrichment and Network Analysis

Lecture 58 - Data Repositories and Databases

Lecture 59 - Application of multi-omics approach for better understanding of cancers

Lecture 60 - Integrated Omics and Systems Biology- Conclusion

NPTEL : NOC:Maternal Infant Young Child Nutrition (Biotechnology)

Co-ordinators : Prof. Rupal Dalal

NPTEL : NOC:Maternal Infant Young Child Nutrition (Hindi) (Biotechnology)

Co-ordinators : Prof. Rupal Dalal

Lecture 1 - à¤ªà¤¹à¤²à¥‡ à¤²à¤•à¥à¤·à¤¯ : à¤à¤¨à¤šà¤«à¤¾, 5 à¤¡à¥‡à¤Ÿà¤¾

Lecture 2 - à¤¦à¥‚à¤‚à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤•à¤¼à¤°à¥à¤¯à¤° à¤‚à¥‡ à¤‚à¤¼à¤•à¥à¤·à¤¯

Lecture 3 - à¤¤à¥€à¤¸à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤®à¤¾à¤¤à¥ƒ à¤¶à¤¿à¤¶à¥ à¤¯à¥‹à¤µà¤¨ à¤¬à¤¾à¤¦ à¤¬à¤šà¥à¤šà¥‡ à¤•à¥€ à¤•à¥à¤·à¤®à¤¤à¤¾ à¤”à¤° à¤•à¥à¤·à¤®à¤¤à¤¾à–à¤¾ à¤”à¤° à¤•à¥à¤·à¤®à¤¤à¤¾à¤¨à¥à¤¸à¤¾à¤°

Lecture 4 - à¤ªà¤¹à¤²à¥‡ à¤²à¤•à¥à¤·à¤¯ : à¤²à¤¾à¤‡à¤µ à¤‚à¥‡à¤¶à¤¨

Lecture 5 - à¤¦à¥‚à¤‚à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤ªà¤¹à¤²à¥‡ à¤²à¤•à¥à¤·à¤¾ à¤”à¤° à¤¦à¥‚à¤‚à¤°à¥‡ à¤ªà¥à¤°à¤•à¤¾à¤° à¤•à¥‡ à¤ªà¥‹à¤·à¤• à¤¤à¤¤à¥à¤µ - à¤¹à¥‡à¤²à¤²à¥à¤¥ à¤‚à¥à¤ªà¥‹à¤·à¤¨ à¤Ÿà¥à¤¯à¤¨à¥,à¤Ÿà¥‹à¤²à¤°à¤¿à¤¯à¤²

Lecture 6 - à¤¤à¥€à¤¸à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤ªà¥à¤°à¥‹à¤Ÿà¥€à¤¨ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 7 - à¤šà¥Œà¤¥à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤•à¥‹à¤²à¥€à¤¨ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 8 - à¤ªà¤¾à¤‚à¤šà¤µà¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤«à¥‹à¤²à¥‡à¤Ÿ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 9 - à¤›à¤ à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤¬à¥€ 12 à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 10 - à¤‚à¤¾à¤¤à¤µà¤¾à¤, à¤²à¤•à¥à¤·à¤¯ : à¤‚à¥‡à¤•à¥à¤¸à¤¿à¤® à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ à¤µà¤¿à¤Ÿà¤¾à¤®à¤¿à¤¨ à¤ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 11 - à¤ªà¤¹à¤²à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤•à¥^à¤²à¥¶à¤¿à¤¯à¤® à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 12 - à¤¦à¥‚à¤‚à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤®à¥^à¤—à¥¨à¥€à¤¶à¤¿à¤¯à¤® à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 13 - à¤¤à¥€à¤¸à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤ªà¥‹à¤Ÿà¥‡à¤¶à¤¿à¤¯à¤® à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 14 - à¤šà¥Œà¤¥à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤œà¤‚à¤• à¤«à¥‚à¤¡

Lecture 15 - à¤ªà¤¾à¤‚à¤šà¤µà¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤‡à¤‚à¤¸à¥à¤²à¤¿à¤¨ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 16 - à¤›à¤ à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤®à¥^à¤•à¤°à¥‹à¤¨à¤¾à¤¯à¤°à¤¸ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 17 - à¤ªà¤¹à¤²à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤ªà¤¹à¤²à¥‡ 1,000 à¤¦à¤¿à¤¨

Lecture 18 - à¤¦à¥‚à¤‚à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤—à¤°à¥à¤à¤¾à¤µà¤¸à¥à¤¥à¤¾ à¤®à¤¹à¤¿à¤²à¤¾à¤“ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¤°à¤² à¤¦à¤¿à¤¶à¤¾à¤¨à¤¿à¤°à¥à¤¦à¥‡à¤¶

Lecture 19 - à¤¤à¥€à¤¸à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤†à¤¯à¤¾à¤¨ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 20 - à¤šà¥Œà¤¥à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤µà¤¿à¤Ÿà¤¾à¤®à¤¿à¤¨ à¤‚à¥€ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 21 - à¤ªà¤¾à¤‚à¤šà¤µà¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤¸à¤²à¤«à¤° à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 22 - à¤ªà¤¹à¤²à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤¸à¥à¤¥à¤¾à¤¨à¥€à¤¯ à¤•à¤¾ à¤µà¤¿à¤œà¥à¤žà¤¾à¤¨

Lecture 23 - à¤¦à¥‚à¤‚à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤‚à¥à¤¨à¥à¤¯à¥‚à¤¨à¤¤à¤¾ à¤˜à¤‚à¤Ÿà¥‡ à¤”à¤° à¤–à¤¾à¤¨à¤¾ à¤•à¥‡ à¤®à¤¹à¤¤à¥à¤µ

Lecture 24 - à¤¤à¥€à¤¸à¤°à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤¸à¥à¤¤à¤¨à¤¾à¤¨ à¤•à¤¾ à¤®à¤¹à¤¤à¥à¤µ

Lecture 25 - à¤šà¥Œà¤¥à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤¬à¥à¤°à¥‡à¤¸à¥à¤Ÿ à¤•à¥à¤°à¥‰à¤¸

Lecture 26 - à¤ªà¤¾à¤‚à¤šà¤µà¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤‚à¥à¤¤à¤¨à¤¾à¤¨ à¤•à¥€ à¤°à¤•à¥à¤·à¤¾ à¤•à¥ à¤¸à¤¾à¤«à¤¼ à¤¸à¤«à¤¾à¤ˆ à¤¬à¤¨à¤¾à¤¯à¥‡ à¤°à¤–à¤¨à¤¾ à¤¸à¤¾à¤°à¥à¤¥à¤•à¤¤à¤¾ à¤•à¥‹ à¤¸à¤®à¤à¤¾à¤¨à¤¾

Lecture 27 - à¤›à¤ à¤¾ à¤²à¤•à¥à¤·à¤¯ : à¤¨à¤µà¤œà¤¾à¤¤ à¤¶à¤¿à¤¶à¥ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¤°à¤² à¤¦à¤¿à¤¶à¤¾à¤¨à¤¿à¤°à¥à¤¦à¥‡à¤¶, - à¤¨à¤µà¤œà¤¾à¤¤ à¤¶à¤¿à¤¶à¥ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¤°à¤² à¤¦à¤¿à¤¶à¤¾à¤¨à¤¿à¤°à¥à¤¦à¥‡à¤¶

Lecture 28 - à¤,à¤¾à¤¤à¤µà¤¾à¤¨à¤¿à¤° : à¤•à¤,à¤—à¤¾à¤°à¥, à¤®à¤¦à¤° à¤•à¥‡à¤¨à¥ à¤•à¥‡ à¤,à¤¾à¤¥ à¤•à¤,à¤—à¤¾à¤°à¥, à¤¬à¥ˆà¤— à¤¬à¤¨à¤¾à¤¨à¥‡ à¤•à¤¾ à¤¤à¤°à¥€à¤•à¤¾

Lecture 29 - à¤ªà¤¹à¤²à¤¾ à¤²à¥‡à¤•à¤° : à¤®à¤¾à¤ à¤•à¥€ à¤¤à¤ˆà¤¯à¤¾à¤°à¥€ à¤”à¤° à¤¬à¤šà¥à¤šà¥‡ à¤•à¥€ à¤,à¥à¤¥à¤¿à¤¤à¤¿

Lecture 30 - à¤¦à¥,à¤,à¤°à¤¾ à¤²à¥‡à¤•à¤šà¤° : à¤,à¥à¤¤à¤¨ à¤•à¥‹ à¤ªà¤•à¤¡à¤¼à¤¨à¤¾ à¤”à¤° à¤¬à¤šà¥à¤šà¥‡ à¤•à¥‹ à¤,à¥à¤¤à¤¨ à¤,à¥‡ à¤²à¤—à¤¾à¤¨à¤¾

Lecture 31 - à¤¤à¥€à¤,à¤°à¤¾ à¤²à¥‡à¤•à¤•à¥à¤šà¤° : à¤…à¤¨à¥à¤¯ à¤ªà¤°à¤¾à¤¶à¤°à¥à¤¶ à¤¬à¤¿à¤,à¤¦à¥

Lecture 32 - à¤šà¥Œà¤¥à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : à¤•à¥à¤°à¥‰à¤¸ à¤•à¥à¤°à¥‡à¤¡à¤¿à¤² à¤,à¥à¤¥à¤¿à¤à¤¤à¤¿ à¤”à¤° à¤²à¥‡à¤šà¤¿à¤,à¤— à¤ªà¤° à¤¹à¥‡à¤²à¥à¤¥ à¤,à¥à¤ªà¥‹à¤¿à¤¸à¥€ à¤Ÿà¥à¤¯à¥‚à¤¬ à¤¸à¥‡ à¤¸à¥€à¤–à¥‡à¤‚

Lecture 33 - à¤ªà¥à¤,à¤šà¤µà¥ à¤²à¥‡à¤•à¥à¤šà¤°: à¤•à¥à¤°à¥‰à¤¸ à¤•à¥à¤°à¥‡à¤¡à¤¿à¤² à¤,à¥à¤¥à¤¿à¤à¤¤à¤¿ à¤®à¥‡à¤šà¤¿à¤,à¤¨à¤¿à¤‚à¤— à¤•à¥à¤¯à¥‚à¤¬ à¤®à¥‡à¤‚ à¤µà¥€à¤¡à¤¿à¤¯à¥‹ à¤•à¥‡ à¤,à¤®à¤,à¥à¤¯à¥‚à¤¨à¤¿à¤•à¥‡à¤¶à¤¨ à¤•à¥‹ à¤•à¥ˆà¤¸à¥‡ à¤•à¤°à¥‡à¤‚

Lecture 34 - à¤›à¤ à¥à¤²à¥‡à¤•à¥à¤šà¤° : à¤,à¥à¤¥à¤¿à¤à¤¤à¤¿ à¤”à¤° à¤—à¤¹à¤°à¥‡ à¤œà¥à¤¡à¤¼à¤¾à¤µ à¤•à¥‡ à¤²à¤¿à¤à¤¤à¤¿ à¤µà¥€à¤¡à¤¿à¤¯à¥‹

Lecture 35 - à¤ªà¤¹à¤²à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : à¤,à¥à¤¤à¤¨à¤¿à¤ªà¤¾à¤¨ à¤•à¥‡ à¤²à¤¿à¤ à¤«à¥à¤Ÿà¤¬à¥‰à¤² à¤ªà¤•à¤¡à¤¼

Lecture 36 - à¤¦à¥,à¤,à¤°à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : à¤à¤• à¤¤à¤°à¤« à¤²à¥‡à¤Ÿ à¤•à¤° à¤,à¥à¤¤à¤¨à¤¿à¤ªà¤¾à¤¨ à¤•à¤°à¤¾à¤¨à¥‡ à¤•à¥€ à¤ªà¤•à¤¡à¤¼

Lecture 37 - à¤¤à¥€à¤,à¤°à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : à¤,à¥à¤¤à¤¨à¤¿à¤ªà¤¾à¤¨ à¤•à¤¾à¤°à¤‹à¤, à¤”à¤° à¤…à¤¨à¥à¤¯ à¤•à¤¾à¤°à¤‹à¤°, à¤•à¥‡ à¤•à¤¾à¤°à¤£ à¤•à¤®à¤¿à¤¨à¤¿à¤¨

Lecture 38 - à¤šà¥Œà¤¥à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : à¤•à¥‹à¤µà¤¿à¤¡ - 19 à¤•à¥‡ à¤¦à¥Œà¤°à¤¾à¤¨ à¤,à¥à¤¤à¤¨à¤¿à¤ªà¤¾à¤¨

Lecture 39 - à¤ªà¤¾à¤,à¤šà¤µà¥ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : à¤¹à¤¾à¤¥ à¤,à¥‡ à¤,à¥à¤¤à¤¨à¤¿ à¤•à¤¾ à¤¦à¥,à¤§ à¤¨à¤¿à¤•à¤¾à¤¸à¥€

Lecture 40 - à¤›à¤ à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : à¤,à¥à¤¤à¤¨à¤¿à¤ªà¤¾à¤¨ à¤•à¤°à¤¾à¤¤à¥€ à¤®à¤¾à¤“à¤, à¤•à¥‡ à¤¨à¤¿à¤¿à¤ªà¤¾à¤²à¤¨ à¤,à¥à¤¥à¤¿à¤¤à¤¿

Lecture 41 - à¤ªà¤¹à¤²à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : 6 à¤,à¥‡ 24 à¤®à¤¹à¥€à¤¨à¥‡ à¤•à¥‡ à¤¶à¤¿à¤¶à¥à¤“à¤, à¤•à¥‡ à¤²à¤¿à¤ à¤•à¤ªà¤¡à¤¼à¥‡ à¤•à¤¾ à¤†à¤¹à¤¾à¤° à¤•à¥‡ à¤,à¤,à¤¬à¤,à¤§ à¤®à¥‡à¤‚ à¤¬à¤¿à¤¶à¥‡à¤·-à¤¨à¤¿à¤°à¥à¤¦à¥‡à¤¶

Lecture 42 - à¤¦à¥,à¤,à¤°à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : à¤¶à¤¿à¤¶à¥ à¤–à¤¾à¤¨à¤¾ à¤¨à¤¹à¥€à¤‚ à¤–à¤¾à¤¤à¤¾ à¤”à¤° à¤–à¤¿à¤²à¥Œà¤¨à¥‡ à¤¸à¥‡ à¤–à¥‡à¤²à¤¨à¥‡ à¤¸à¥‡ à¤•à¤¤à¤°à¤¾à¤¤à¥‡ à¤•à¥‹ à¤«à¤¿à¤° à¤,à¤«à¤¿à¤° à¤•à¥‡ à¤²à¤¿à¤ à¤¤à¥ˆà¤¯à¤¾à¤°

Lecture 43 - à¤¤à¥€à¤,à¤°à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : 6 à¤®à¤¹à¥€à¤¨à¥‡ à¤•à¥‡ à¤¬à¤šà¥à¤šà¥‡ à¤•à¥‹ à¤¸à¤¹à¤¾à¤°à¤¾ à¤•à¥‡ à¤²à¤¿à¤ à¤¤à¥ˆà¤¯à¤¾à¤°à¥€ à¤•à¤°à¤¨à¤¾ à¤”à¤° à¤®à¤¹à¤¿à¤¨à¥‡ à¤–à¤¤à¥à¤® à¤¹à¥‹à¤¨à¥‡ à¤•à¥‡ à¤¬à¤¾à¤¦ à¤•à¤¿à¤¸ à¤¤à¤°à¤¹ à¤•à¥‡ à¤¬à¤¦à¤²à¤¾à¤µ à¤•à¤°à¤¨à¥‡ à¤šà¤¾à¤¹à¤¿à¤

Lecture 44 - à¤šà¥Œà¤¥à¤¾ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : 7 à¤®à¤¹à¥€à¤¨à¥‡ à¤•à¥‡ à¤¬à¤šà¥à¤šà¥‡ à¤•à¥‹ à¤¸à¤¹à¤¾à¤°à¤¾ à¤¦à¥‡à¤¨à¤¾ à¤¶à¥à¤°à¥‚ à¤•à¤°à¥‡à¤‚ à¤–à¤¾à¤¨à¤¾ à¤–à¤¿à¤²à¤¾à¤¨à¤¾ à¤¶à¥à¤°à¥‚ à¤•à¤°à¥‡à¤‚

Lecture 45 - à¤ªà¤¾à¤,à¤šà¤µà¥ à¤²à¥‡à¤•à¥à¤šà¤°-à¤… : 8 à¤,à¥‡ 11 à¤®à¤¹à¥€à¤¨à¥‡ à¤•à¥‡ à¤¬à¤šà¥à¤šà¥‡ à¤•à¥‹ à¤¸à¤¹à¤¾à¤°à¤¾ à¤¦à¥‡à¤¨à¤¾ à¤¶à¥à¤°à¥‚ à¤•à¤°à¥‡à¤‚ à¤¤à¤¾à¤•à¤¿ à¤¬à¤¾à¤¦ à¤®à¥‡à¤‚ à¤–à¤¾à¤¨à¤¾ à¤–à¤¿à¤²à¤¾à¤¨à¥‡ à¤®à¥‡à¤‚ à¤•à¥‹à¤ˆ à¤•à¤ à¤¿à¤¨à¤¾à¤ˆ à¤¨à¤¹à¥€à¤‚ à¤¹à¥‹

Lecture 46 - à¤ªà¤¹à¤²à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : à¤ªà¤¹à¤¿à¤• à¤†à¤¹à¤¾à¤° à¤•à¥‡ à¤¦à¥Œà¤°à¤¾à¤¨ à¤¹à¤²à¥à¤•à¥‡ à¤¸à¥‡ à¤®à¤¾à¤²à¥€à¤¶ à¤,à¤®à¥‡à¤¨à¥‡ à¤•à¥‡ à¤¬à¤¾à¤°à¥‡ à¤®à¥‡à¤‚ à¤¬à¤¤à¤¾à¤à¤,

Lecture 47 - à¤¦à¥,à¤,à¤°à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : 12 à¤,à¥‡ 18 à¤®à¤¹à¥€à¤¨à¥‡ à¤•à¥‡ à¤¬à¤šà¥à¤šà¥‡ à¤•à¥‹ à¤¸à¤¹à¤¾à¤°à¤¾ à¤¦à¥‡à¤¨à¤¾ à¤¶à¥à¤°à¥‚ à¤•à¤°à¥‡à¤‚ à¤–à¤¾à¤¨à¤¾ à¤–à¤¿à¤²à¤¾à¤¨à¤¾ à¤¶à¥à¤°à¥‚ à¤•à¤°à¥‡à¤‚|

Lecture 48 - à¤¤à¥€à¤,à¤°à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : 19 à¤,à¥‡ 24 à¤®à¤¹à¥€à¤¨à¥‡ à¤•à¥‡ à¤¬à¤šà¥à¤šà¥‡ à¤•à¥‹ à¤¸à¤¹à¤¾à¤°à¤¾ à¤¦à¥‡à¤¨à¤¾ à¤¶à¥à¤°à¥‚ à¤•à¤°à¥‡à¤‚ |

Lecture 49 - à¤šà¥Œà¤¥à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : à¤¬à¤šà¥à¤šà¥‹à¤‚, à¤•à¥€ à¤ªà¥à¤°à¤¾à¤°à¤‚à¤à¤¿à¤• à¤¦à¥‡à¤–à¤à¤¾à¤² à¤•à¥‡ à¤²à¤¿à¤ à¤•à¥à¤¯à¤¾ à¤•à¤°à¥‡à¤‚ à¤–à¤¾à¤¨à¤¾ à¤–à¤¿à¤²à¤¾à¤¨à¥‡ à¤•à¥‡ à¤¬à¤¾à¤¦ à¤•à¥à¤¯à¤¾ à¤•à¤°à¥‡à¤‚ |

Lecture 50 - à¤ªà¤¹à¤²à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : à¤•à¤¿à¤¶à¥‹à¤°à¤¾à¤µà¤¸à¥à¤¥à¤¾, à¤•à¥‡ à¤²à¤¿à¤ à¤¤à¥ˆà¤¯à¤¾à¤°à¥€ à¤”à¤° à¤¬à¤¾à¤¤à¤šà¥€à¤¤ à¤•à¥‡ à¤¦à¥Œà¤°à¤¾à¤¨ à¤•à¥à¤¯à¤¾ à¤•à¤¹à¤¨à¤¾ à¤šà¤¾à¤¹à¤¿à¤ à¤”à¤° à¤•à¥à¤¯à¤¾ à¤¨à¤¹à¥€à¤‚ à¤•à¤¹à¤¨à¤¾ à¤šà¤¾à¤¹à¤¿à¤| à¤ªà¤¹à¤¿à¤à¤¾à¤¨ à¤—à¤°à¥à¤®-

à¤¾à¤µà¤¸à¤¾à¤¯ à¤ªà¥‹à¤·à¤£

Lecture 51 - à¤¦à¥‚à¤¸à¤°à¥‡ à¤²à¥‡à¤•à¥à¤šà¤° : à¤—à¤°à¥à¤µà¤¤à¥à¤¤à¤¾à¤¨à¥‡, à¤•à¥‡ à¤²à¤¿à¤ à¤ªà¥Œà¤·à¤£ à¤¸à¥à¤°à¤•à¥à¤·à¤¾ à¤”à¤° à¤®à¤¹à¤¿à¤²à¤¾ à¤•à¤²à¥à¤¯à¤¾à¤£

Lecture 52 - à¤¤à¥€à¤¸à¤°à¥‡ à¤²à¥‡à¤•à¥à¤šà¤° : à¤¸à¥à¤¤à¤¨à¤ªà¤¾à¤¨ à¤•à¤°à¤¾à¤¨à¥‡ à¤µà¤¾à¤²à¥€ à¤®à¤¹à¤¿à¤²à¤¾à¤“à¤‚ à¤•à¥‡ à¤²à¤¿à¤ à¤ªà¥Œà¤·à¤£ à¤¸à¥à¤°à¤•à¥à¤·à¤¾ à¤”à¤° à¤®à¤¹à¤¿à¤²à¤¾à¤“à¤‚ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¥à¤°à¤•à¥à¤·à¤¾

Lecture 53 - à¤ªà¤¹à¤²à¥‡ à¤¦à¥‡à¤•à¥à¤šà¤° : à¤¡à¥‰à¤•à¥à¤¯à¥à¤®à¥‡à¤‚à¤šà¤“ à¤¬à¤¾à¤¯à¥‹à¤•à¥‡à¤¸à¤¿à¤¯à¥‹à¤—à¥à¤°à¤¾à¤«à¥€ à¤®à¤¿à¤¶à¤¨ à¤…à¤§à¥à¤¯à¤¨ (1997-2003)| à¤ªà¥‹à¤·à¤£à¤¿à¤¯ à¤µà¤¿à¤§à¤¿ à¤šà¤¾à¤°à¥à¤Ÿ

Lecture 54 - à¤¦à¥‚à¤¸à¤°à¥‡ à¤²à¥‡à¤•à¥à¤šà¤° : à¤®à¤¾à¤¨à¤• à¤¸à¤®à¤¾à¤¨à¥à¤¯ à¤µà¤¿à¤šà¤²à¤¨ à¤¸à¤¾à¤°à¤£à¤¿à¤¯à¥‹à¤‚ à¤¸à¥‡ à¤¤à¥à¤²à¤¨à¤¾ à¤œà¥‡à¤¸à¥€ à¤¸à¤¾à¤°à¤£à¤¿à¤¯à¥‹à¤‚ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¤¾à¤°à¥à¤Ÿ

Lecture 55 - à¤¤à¥€à¤¸à¤°à¥‡ à¤²à¥‡à¤•à¤¨ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¤¾à¤®à¤—à¥à¤°à¥€ à¤¤à¤¥à¤¾ à¤¸à¤¾à¤®à¤—à¥à¤°à¥€ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¥à¤°à¤•à¥à¤·à¤¾ à¤®à¤¹à¤¤à¥à¤µ à¤ªà¥‚à¤°à¥à¤£ à¤¹à¥ˆà¤‚

Lecture 56 - à¤šà¥Œà¤¥à¤¾ à¤²à¥‡à¤•à¤¨ à¤šà¤°à¥à¤®à¤°à¥‹à¤—à¤¾à¤®à¤¯ à¤¤à¤¥à¤¾ à¤®à¤¾à¤¨à¤¸à¤¿à¤• à¤¸à¥à¤µà¤¾à¤¸à¥à¤¥à¥à¤¯

Lecture 57 - à¤ªà¤¹à¤²à¥‡ à¤¦à¥‡à¤•à¥à¤šà¤° : à¤¸à¥à¤¤à¤¨à¤ªà¤¾à¤¨ à¤•à¥‡ à¤²à¤¿à¤ à¤²à¤¾à¤à¤¦à¤¾à¤¯à¤• à¤¨à¤¿à¤¯à¤®à¤¿à¤¤ à¤¸à¤¤à¥à¤° 1

Lecture 58 - à¤¦à¥‚à¤¸à¤°à¥‡ à¤²à¥‡à¤•à¥à¤šà¤° : à¤¸à¥à¤¤à¤¨à¤ªà¤¾à¤¨ à¤•à¥‡ à¤²à¤¿à¤ à¤²à¤¾à¤à¤¦à¤¾à¤¯à¤• à¤¨à¤¿à¤¯à¤®à¤¿à¤¤ à¤¸à¤¤à¥à¤° 2| à¤¸à¥à¤¤à¤¨à¤ªà¤¾à¤¨ à¤®à¥‡à¤‚ à¤•à¤ à¤¿à¤¨à¤¾à¤‡à¤¯à¥‹à¤‚ à¤•à¥‹ à¤¦à¥‚à¤°

Lecture 59 - à¤¤à¥€à¤¸à¤°à¥‡ à¤²à¥‡à¤•à¥à¤šà¤° : à¤ªà¥‹à¤·à¤£ à¤šà¤¾à¤°à¥à¤Ÿ

Lecture 60 - à¤šà¥Œà¤¥à¤¾ à¤²à¥‡à¤•à¥à¤šà¤° : à¤²à¤¡à¤¼à¤•à¤¿à¤¯à¥‹à¤‚ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¥à¤µà¤¾à¤¸à¥à¤¥à¥à¤¯ à¤¸à¤®à¤¸à¥à¤¯à¤¾à¤à¤‚ - à¤¸à¤¤à¥à¤° 1

Lecture 61 - à¤ªà¤¾à¤‚à¤šà¤µà¤¾à¤ à¤²à¥‡à¤•à¥à¤šà¤° : à¤²à¤¡à¤¼à¤•à¤¿à¤¯à¥‹à¤‚ à¤•à¥‡ à¤²à¤¿à¤ à¤¸à¥à¤µà¤¾à¤¸à¥à¤¥à¥à¤¯ à¤¸à¤®à¤¸à¥à¤¯à¤¾à¤à¤‚ - à¤¸à¤¤à¥à¤° 2

Lecture 62 - à¤›à¤ à¤¾à¤µà¤¾à¤•à¥à¤šà¤° : à¤®à¤¾à¤¤à¥ƒ, à¤¶à¤¿à¤¶à¥ à¤”à¤° à¤¬à¤¾à¤² à¤¸à¥à¤µà¤¾à¤¸à¥à¤¥à¥à¤¯ à¤•à¥‡ à¤²à¤¿à¤ à¤ªà¥‹à¤·à¤£ à¤¸à¤®à¤¸à¥à¤¯à¤¾à¤à¤‚

NPTEL : Enzyme Science and Engineering (Biotechnology)

Co-ordinators : Prof. Subhash Chand

NPTEL : NOC:Introduction to Dynamical Models in Biology (Biotechnology)

Co-ordinators : Prof. Biplab Bose

NPTEL : NOC:Genetic Engineering: Theory and Application (Biotechnology)

Co-ordinators : Dr. Vishal Trivedi

NPTEL : NOC:Experimental Biotechnology (Biotechnology)

Co-ordinators : Dr. Vishal Trivedi

NPTEL : NOC:Biointerface Engineering (Biotechnology)

Co-ordinators : Prof. Lalit M. Pandey

NPTEL : NOC:Basics of Biology (Biotechnology)

Co-ordinators : Prof. Vishal Trivedi

NPTEL : NOC:Data Analysis for Biologists (Biotechnology)

Co-ordinators : Prof. Biplab Bose

NPTEL : NOC:Genome Editing and Engineering (Biotechnology)

Co-ordinators : Prof. Utpal Bora

NPTEL : NOC:Enzyme Sciences and Technology (Biotechnology)

Co-ordinators : Prof. Vishal Trivedi

NPTEL : NOC:Molecular Biology (Biotechnology)

Co-ordinators : Prof. Vishal Trivedi

NPTEL : Animal Physiology (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : Bio electricity (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : NOC:Human Molecular Genetics (Biotechnology)

Co-ordinators : Mr.S. Ganesh

NPTEL : NOC:Functional Genomics (Biotechnology)

Co-ordinators : S. Ganesh

NPTEL : NOC:Bioenergy (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : NOC:Animal Physiology (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : NOC:Cell Culture Technologies (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : NOC:Forest Biometry (Biotechnology)

Co-ordinators : Prof. Mainak Das, Dr. Ankur Awadhiya

NPTEL : NOC:Introduction to Professional and Scientific Communication (Biotechnology)

Co-ordinators : Mr. S. Ganesh

NPTEL : NOC:Bioelectrochemistry (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : NOC:Bioenergetics of Life Processes (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : NOC:WildLife Conservation (Biotechnology)

Co-ordinators : Dr. Ankur Awadhiya

NPTEL : NOC:Nanotechnology in Agriculture (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : NOC:Wild Life Ecology (Biotechnology)

Co-ordinators : Dr. Ankur Awadhiya, Prof. Mainak Das

NPTEL : NOC:Forests and their Management (Biotechnology)

Co-ordinators : Dr. Ankur Awadhiya

NPTEL : NOC:Conservation Economics (Biotechnology)

Co-ordinators : Dr. Ankur Awadhiya

NPTEL : NOC:Conservation Geography (Biotechnology)

Co-ordinators : Dr. Ankur Awadhiya

NPTEL : NOC:Neurobiology (Biotechnology)

Co-ordinators : Prof. Nitin Gupta

Lecture 32 - L5 Module 4

Lecture 33 - L5 Module 5

Lecture 34 - L5 Module 6

NPTEL : NOC:Design for Biosecurity (Biotechnology)

Co-ordinators : Prof. Mainak Das

NPTEL : BioChemistry I (Biotechnology)

Co-ordinators : Prof. S. Dasgupta

NPTEL : NOC:Industrial Biotechnology (Biotechnology)

Co-ordinators : Prof. Debabrata Das

NPTEL : NOC:Aspects Of Biochemical Engineering (Biotechnology)

Co-ordinators : Prof. Debabrata Das

NPTEL : NOC:Biomicrofluidics (Biotechnology)

Co-ordinators : Prof. Tapas Kumar Maiti, Prof. Suman Chakraborty

NPTEL : NOC:Immunology (Biotechnology)

Co-ordinators : Prof. Agneyo Ganguly, Prof. S. K Ghosh

NPTEL : NOC:Metabolic Engineering (Biotechnology)

Co-ordinators : Prof. Amit Ghosh, Prof. Pinaki Sar

NPTEL : NOC:Environmental Chemistry and Microbiology (Biotechnology)

Co-ordinators : Prof. Sudha Goel, Prof. Anjali Pal

NPTEL : NOC:Environmental Biotechnology (Biotechnology)

Co-ordinators : Prof. Pinaki Sar

NPTEL : NOC:Fundamentals of Protein Chemistry (Biotechnology)

Co-ordinators : Prof. Swagata Dasgupta

NPTEL : NOC:Introduction to Biomedical Imaging Systems (Biotechnology)

Co-ordinators : Dr. Arun K.Tangirala

Lecture 32 - Ultrasound_Intro_Phys

Lecture 33 - Ultrasound Phys_Interactions

Lecture 34 - US doppler and Instrumentation

Lecture 35 - US_Beampattern

Lecture 36 - Approximations

Lecture 37 - US_Imaging Equation_modes

Lecture 38 - Parameters of interest

Lecture 39 - Beam Steering : Phased Array

Lecture 40 - MRI_Intro_S1-S9

Lecture 41 - MRI_Phys_S10-S16

Lecture 42 - MRI_Phys_S17-S20

Lecture 43 - MRI_Phys_S21-S28

Lecture 44 - MRI_Phys_S29-S39

Lecture 45 - MRI_Phys_S40-S44

Lecture 46 - MRI_Phys_S45_S52

Lecture 47 - MRI_Instru_S1_S16

Lecture 48 - MRI_Instru_s17_s26

Lecture 49 - MRI_slice sel_S27_S41

Lecture 50 - MRI_Freq_Encode_S42_S60

Lecture 51 - MRI_DAQ_S61_S69

Lecture 52 - MRI_RECON_S70_S82

Lecture 53 - MRI_IQ_S83_S96

NPTEL : NOC:Next Generation Sequencing Technologies: Data Analysis and Applications (Biotechnology)

Co-ordinators : Prof. Riddhiman Dhar

NPTEL : NOC:Computational Neuroscience (Biotechnology)

Co-ordinators : Prof. Sharba Bahdyopadhyay

NPTEL : NOC:Electrophysiology of Heart (Biotechnology)

Co-ordinators : Dr. Arijita Banerjee

NPTEL : NOC:Pharmacognosy and Metabolic Engineering (Biotechnology)

Co-ordinators : Prof. Adinpunya Mitra

Lecture 32 - Engineered yeast brews precursors of anticancer drug vinblastine

Lecture 33 - Recent discovery of strychnine biosynthetic pathway

Lecture 34 - Indole alkaloid biosynthesis - a final overview

Lecture 35 - Recent discovery of colchicine biosynthetic pathway

Lecture 36 - Biosynthesis of terpenoids - an outline

Lecture 37 - Diversity of monoterpenoids

Lecture 38 - Biosynthesis of monoterpenoids

Lecture 39 - Diversity of sesquiterpenes, diterpenes, triterpenes and polyterpenes

Lecture 40 - Oleoresins and polyterpenes - an outline

Lecture 41 - Monoterpenoids as components of floral scent volatiles: Metabolic engineering of

Lecture 42 - Biosynthesis of carotenoids and carotenoid cleavage products

Lecture 43 - Metabolic engineering of carotenoid pathway

Lecture 44 - Metabolic engineering of carotenoid pathway: Golden Rice Story

Lecture 45 - Menthol story: Biosynthesis and pathway manipulation - I

Lecture 46 - Menthol story: Biosynthesis and pathway manipulation - II

Lecture 47 - Artemisinin, hyperforin and taxol - three promising candidates for biotechnological

Lecture 48 - Phenolics: Origin via shikimate pathway

Lecture 49 - Phenolics: Phenylpropanoids, benzenoids, coumarins, tannins

Lecture 50 - Phenolics: Monolignols, lignins and lignans

Lecture 51 - Phenolics: Metabolic engineering of monolignol pathways

Lecture 52 - Phenolics: Biosynthesis of lignans and podophyllotoxin; Caffeic acid esters

Lecture 53 - Phenolics: Flavonoids, Flavones, Isoflavonoids, Proanthocyanidins

Lecture 54 - Phenolics: Biosynthesis of anthocyanins; Metabolic pathway engineering for enhance

Lecture 55 - Phenolics: Metabolic engineering of anthocyanin pathways in flowers

Lecture 56 - Phenolics: Alcohol acetyl transferses and volatile phenolics

Lecture 57 - Phenolics: Biosynthesis of volatile benzenoids

Lecture 58 - Phenolics: Biosynthesis of vanillin in plants

Lecture 59 - Phenolics: Metabolic engineering for vanillin

Lecture 60 - Phenolics: Biosynthesis of shikonin

Lecture 61 - Phenolics: Metabolic engineering of shikonin pathway

Lecture 62 - Molecular Pharming: Transplastomic plants

Lecture 63 - Molecular Pharming: production of human somatotropin in tobacco

NPTEL : NOC:Principles of Downstream techniques in Bioprocess (Biotechnology)

Co-ordinators : Prof. Mukesh Doble

NPTEL : Thermodynamics (Biotechnology)

Co-ordinators : Prof. G.K. Suraishkumar

NPTEL : NOC:Principles of Downstream Techniques in Bioprocess (Biotechnology)

Co-ordinators : Prof. Mukesh Doble

NPTEL : NOC:Biostatistics and Design of Experiments (Biotechnology)

Co-ordinators : Prof. Mukesh Doble

NPTEL : NOC:Bioreactors (Biotechnology)

Co-ordinators : Prof. G.K. Suraishkumar

NPTEL : NOC:Medical Biomaterials (Biotechnology)

Co-ordinators : Prof. Mukesh Doble

NPTEL : NOC:BioInformatics - Algorithms and Applications (Biotechnology)

Co-ordinators : Prof. M. Michael Gromiha

Lecture 32 - Secondary structure prediction - III

Lecture 33 - Protein tertiary structure - I

Lecture 34 - Protein tertiary structure - II

Lecture 35 - Protein structure analysis - I

Lecture 36 - Protein structure analysis - II

Lecture 37 - Protein structure analysis - III

Lecture 38 - Demo: PDB or Pymol or PDBParam

Lecture 39 - Protein structure analysis - IV

Lecture 40 - Protein structure prediction - I

Lecture 41 - Protein structure prediction - II

Lecture 42 - Protein stability - I

Lecture 43 - Protein stability - II

Lecture 44 - Demo: Homology Modelling

Lecture 45 - Stabilizing residues

Lecture 46 - Thermodynamic database

Lecture 47 - Stability of proteins upon mutations - I

Lecture 48 - Stability of proteins upon mutations - II

Lecture 49 - Demo: ProTherm

Lecture 50 - Protein folding rate - I

Lecture 51 - Protein folding rate - II

Lecture 52 - Protein interactions - I

Lecture 53 - Protein interactions - II

Lecture 54 - Computer aided drug design - I

Lecture 55 - Computer aided drug design - II

Lecture 56 - Virtual screening - I

Lecture 57 - Virtual screening - II

Lecture 58 - QSAR - I

Lecture 59 - QSAR - II

Lecture 60 - Demo: Autodock

Lecture 61 - awk programming - I

Lecture 62 - awk programming - II

Lecture 63 - Development of algorithms - I

Lecture 64 - Development of algorithms - II

NPTEL : NOC:Demystifying the Brain (Biotechnology)

Co-ordinators : Dr. V Srinivasa Chakravarthy

NPTEL : NOC:Computational Systems Biology (Biotechnology)

Co-ordinators : Prof. Karthik Raman

Lecture 65 - Understanding FBA

Lecture 66 - Understanding FBA

Lecture 67 - Perturbations to Metabolic Networks: Over-expression

Lecture 68 - Perturbations to Metabolic Networks: Synthetic Lethals

Lecture 69 - Perturbations to Metabolic Networks: Synthetic Lethals

Lecture 70 - Constraint-based Modelling of Metabolic Networks

Lecture 71 - Lab: Gene Deletions

Lecture 72 - Integrating Regulatory Information into Constraint-Based Models

Lecture 73 - Elementary Modes

Lecture 74 - Elementary Modes

Lecture 75 - Constraint-based Modelling of Metabolic Networks: Applications

Lecture 76 - Constraint-based Modelling of Metabolic Networks: Applications

Lecture 77 - Constraint-based Modelling of Metabolic Networks: Applications

Lecture 78 - Lab: Gene Deletions

Lecture 79 - Constraint-based Modelling of Metabolic Networks: Recap

Lecture 80 - Constraint-based Modelling of Metabolic Networks: Recap

Lecture 81 - Constraint-based Modelling of Metabolic Networks: Recap

Lecture 82 - ^{13}C-Metabolic Flux Analysis using Mass Spectrometry

Lecture 83 - ^{13}C-Metabolic Flux Analysis using Mass Spectrometry

Lecture 84 - ^{13}C-Metabolic Flux Analysis using Mass Spectrometry

Lecture 85 - Lab: ^{13}C-Metabolic Flux Analysis using Mass Spectrometry

Lecture 86 - Modelling Gene Regulatory Networks

Lecture 87 - Modelling Gene Regulatory Networks

Lecture 88 - Modelling Gene Regulatory Networks

Lecture 89 - Lab: Modelling Gene Regulatory Networks

Lecture 90 - Lab: Modelling Gene Regulatory Networks

Lecture 91 - Computational Modelling of Host-Pathogen Interactions

Lecture 92 - Computational Modelling of Host-Pathogen Interactions

Lecture 93 - Robustness in Biological Systems

Lecture 94 - Robustness in Biological Systems: Mechanisms

Lecture 95 - Robustness in Biological Systems: Organising Principles

Lecture 96 - Robustness in Biological Systems: Trade-offs

Lecture 97 - Obustness and Evolvability

NPTEL : NOC:Material and Energy Balances (Biotechnology)

Co-ordinators : Prof.Vignesh Muthuvijayan

NPTEL : NOC:Computer Aided Drug Design (Biotechnology)

Co-ordinators : Prof. Mukesh Doble

NPTEL : NOC:Plant Cell Bioprocessing (Biotechnology)

Co-ordinators : Prof. Smita Srivastava

NPTEL : NOC:Tissue Engineering (Biotechnology)

Co-ordinators : Prof.Vignesh Muthuvijayan

NPTEL : NOC:Thermodynamics for Biological Systems: Classical and Statistical Aspect (Biotechnology)

Co-ordinators : Prof. G.K. Suraishkumar, Prof. Sanjib Senapati

NPTEL : NOC:Transport Phenomena in Biological Systems (Biotechnology)

Co-ordinators : Prof. G.K. Suraishkumar

NPTEL : NOC:Introduction to Developmental Biology (Biotechnology)

Co-ordinators : Prof. Subramaniam K

NPTEL : NOC:Bioreactor Design and Analysis (Biotechnology)

Co-ordinators : Prof. Smita Srivastava

NPTEL : NOC:Biochemistry (IITM) (Biotechnology)

Co-ordinators : Prof. Subramaniam K

Lecture 32 - Cholestrol Biosynthesis and Lipid transport - Part 1

Lecture 33 - Cholestrol Biosynthesis and Lipid transport - Part 2

Lecture 34 - Hormonal Regulation and Integration of Mammalian Metabolism

NPTEL : NOC:Cellular Biophysics: A Framework for Quantitative Biology (Biotechnology)

Co-ordinators : Prof. R. Chaitanya A. Athale

NPTEL : NOC:Medical Image Analysis (Biotechnology)

Co-ordinators : Prof. Ganapathy Krishnamurthi

NPTEL : NOC:Organ Printing (Biotechnology)

Co-ordinators : Prof. Falguni Pati

NPTEL : NOC:Introduction to Cell Biology (Biotechnology)

Co-ordinators : Prof. Girish Ratnaparkhi

NPTEL : NOC:RNA Biology (Biotechnology)

Co-ordinators : Prof. Rajesh Ramachandran

NPTEL : NOC:Biomechanics (Biotechnology)

Co-ordinators : Prof. Varadhan

Lecture 32 - Spine muscles

Lecture 33 - Spine problem

Lecture 34 - Hip anatomy and movements

Lecture 35 - Hip muscles

Lecture 36 - Hip problem

Lecture 37 - Knee anatomy and movements

Lecture 38 - Knee muscles

Lecture 39 - Knee problem

Lecture 40 - Ankle anatomy and movements

Lecture 41 - Ankle muscles

Lecture 42 - Ankle problem

Lecture 43 - Grasping- reaching- chains

Lecture 44 - D.O.F mobility, open/closed chain

Lecture 45 - Forward kinematics and workspace

Lecture 46 - 2R inverse kinematics

Lecture 47 - 3R kinematics forward and inverse

Lecture 48 - D-H parameters

Lecture 49 - Velocity and jacobian

Lecture 50 - 3R velocity

Lecture 51 - Tissues and types of tissues

Lecture 52 - Bone microstructure and cells

Lecture 53 - Properties of bones

Lecture 54 - Wolffs Law and Hookean behavior

Lecture 55 - Elastic properties and stress strain relations

Lecture 56 - Stress strain curve and mechanical properties of biological materials

Lecture 57 - Bending of Bones

Lecture 58 - Viscolelastic modelling

Lecture 59 - Maxwell Model

Lecture 60 - Voight Model

Lecture 61 - Kelvin model

Lecture 62 - Viscoelasticity in bones

Lecture 63 - Tissues and its constituents

Lecture 64 - Cartilages, ligaments and tendons

NPTEL : Introduction to Synthetic Biology (Biotechnology)

Co-ordinators : Prof. Karthik Raman

Lecture 32 - Introduction to Synthetic Biology - Day 10 Part 2

Lecture 33 - Introduction to Synthetic Biology - Day 10 Part 3

NPTEL : NOC:Computational Genomics (Biotechnology)

Co-ordinators : Prof. Vineet Kumar Sharma

NPTEL : NOC:Human Physiology (Biotechnology)

Co-ordinators : Prof. Nishikant Subedar

NPTEL : NOC:I Think Biology (Biotechnology)

Co-ordinators : Prof. Kaustubh Rau, Prof. Sravanti Uppaluri, Prof. Divya Uma, Prof. Jayanti Ray Mukherjee, Prof. Sriram

NPTEL : NOC:Classics in Neuroscience (Biotechnology)

Co-ordinators : Prof.Varadhan SKM

NPTEL : NOC:Advances in Omics (Biotechnology)

Co-ordinators : Prof. Nagarjun Vijay

NPTEL : NOC:Statistics for Biomedical Engineers (Biotechnology)

Co-ordinators : Prof. Babji Srinivasan

Lecture 32 - Multivariate Hypothesis: Paired vs Unpaired Testing

Lecture 33 - Multivariate Hypothesis: Two population variances

Lecture 34 - Multivariate Hypothesis: Multiple Random Variables - Part 1

Lecture 35 - Multivariate Hypothesis: Multiple Random Variables - Part 2

Lecture 36 - Multivariate Hypothesis: Covariance and Correlation

Lecture 37 - One Way ANOVA: Motivation and Assumptions

Lecture 38 - One Way ANOVA: Fixed and Random effects Model

Lecture 39 - One Way ANOVA: Derivation and Confidence Interval

Lecture 40 - One Way ANOVA: Confidence Interval

Lecture 41 - One Way ANOVA: Unbalanced Experiment and Residuals

Lecture 42 - One Way ANOVA: Interpretation of Results

Lecture 43 - Statistical Modeling: Introduction

Lecture 44 - Statistical Modeling: Linear Regression Derivation

Lecture 45 - Statistical Modeling: Linear Regression - Assumption and Residuals

Lecture 46 - Statistical Modeling: Multi Linear Regression

Lecture 47 - Statistical Modeling: Logistic Regression

Lecture 48 - Statistical Modeling: Cross Entropy Loss

Lecture 49 - Statistical Modeling: Gradient Descent

Lecture 50 - Statistical Modeling: One Way Anova via Linear Regression

Lecture 51 - Design Of Experiments: Randomised Complete Block Design - Part 1

Lecture 52 - Design Of Experiments: Randomised Complete Block Design - Part 2

Lecture 53 - RCBD: Math Formulation and Derivation

Lecture 54 - RCBD: Necessity and Application

Lecture 55 - Latin Square: Introduction

Lecture 56 - Latin Square: Math and Formulation

Lecture 57 - Graeco - Latin Square

Lecture 58 - Interaction Among Variables

Lecture 59 - Two-Way ANOVA: Introduction - Part 1

Lecture 60 - Two-Way ANOVA: Introduction - Part 2

Lecture 61 - Two-Way ANOVA: Math and Formulation

Lecture 62 - Factorial Design: 2^2 Experiments

Lecture 63 - Factorial Design: 2^k Experiments - Part 1

Lecture 64 - Factorial Design: 2^k Experiments - Part 2

NPTEL : Analytical Technologies in Biotechnology (Biotechnology)

Co-ordinators : Dr. Ashwani K. Sharma

NPTEL : NOC:Biomedical Nanotechnology (Biotechnology)

Co-ordinators : Prof. P.Gopinath

NPTEL : NOC:Plant Developmental Biology (Biotechnology)

Co-ordinators : Prof. Shri Ram Yadav

NPTEL : NOC:Structural Biology (Biotechnology)

Co-ordinators : Prof. Saugata Hazra

NPTEL : NOC:Learning about Learning: A Course on Neurobiology of Learning and Memory (Biotechnology)

Co-ordinators : Prof. Balaji Jayaprakash

NPTEL : NOC:Drug Delivery: Principles and Engineering (Biotechnology)

Co-ordinators : Rachit Agarwal

NPTEL : NOC:Fundamentals of Micro and Nanofabrication (Biotechnology)

Co-ordinators : Prof. Shankar Selvaraja

NPTEL : NOC:Optical Spectroscopy and Microscopy: Fundamentals of Optical Measurements and Instrumentation (Biotechnology)

Co-ordinators : Prof. Balaji Jayaprakash

NPTEL : NOC:Cell Biology: Cellular Organization, Division and Processes (Biotechnology)

Co-ordinators : Prof. Shikha Laloraya

Lecture 32 - Nerve cells

Lecture 33 - The Cancer Cell

NPTEL : NOC:Microsensors, Implantable Devices and Rodent Surgeries for Biomedical Applications (Biotechnology)

Co-ordinators : Prof. Shabari Girishan K V, Prof. Hardik J. Pandya